

ABSTRACT

INTRODUCTION

We are concerned about the wound healing in post operative patients, since wound complications will increase the morbidity of patient. Wound management is a basic practice in surgery, especially after an elective abdominal surgery. Our task after surgery is to avoid and thereby to reduce the adverse effects of wound complications such as hematoma, seroma and surgical site infection. The rationale for the use of subcutaneous drain is based on the principle that removal of the collecting serum or debris and elimination of dead space in subcutaneous plane will result in lower rate of infection and wound complications. Only a few studies are available in the literature regarding the role of subcutaneous drain in the prevention of local wound complications and majority of these studies were done in female patients who undergoes gynaecological or breast surgeries, with controversial results. Many elective abdominal surgeries are routinely performed in general surgical units of our institution and a subcutaneous collection in such patients increases the morbidity.

OBJECTIVES

The main objective of our study is to determine whether subcutaneous drain can reduce the post operative wound complications in obese patients undergoing elective abdominal surgery in the Department of General Surgery at Coimbatore medical college hospital.

MATERIALS AND METHODS

Patients with BMI of more than 30, Patients with subcutaneous fat thickness of more than 3 cms, Patients undergoing elective abdominal surgeries and Patients of either sex with age of between 20-60 years are included in our study. Patients with sepsis and spillage, Patients undergoing laparoscopic surgery, Patients undergoing revision surgeries and Patients with associated comorbidities are excluded from our study.

It is a prospective open comparative study carried over a period of one year. Patients were randomized before surgery and divided into two groups by systemic random sampling. Total sample size 150 with 75 in each group.

All patients will receive same preparations.

1. Enema in morning of day of surgery.
2. Patients should take shower 1 day before surgery and body hair removal
3. Surgical field disinfected by use of povidone iodine.
4. Injection cefotaxime 1g i.v just before skin incision.
5. Skin incision made with scalpel.
6. Subcutaneous fat dissected with electrocautery.
7. Surgical instruments to be exchanged just before muscle Closure.
8. Wound irrigated with saline just before skin closure.

9. Subcutaneous layer closed with chromic catgut.
10. Only closed tube drain is preferred since corrugated drain itself can predispose infections.
11. Subcutaneous drain placed along the entire length of subcutaneous tissue.
12. Exit of the drain should be separated from the main wound.
13. Drain is removed when the output is less than 30 ml/day for 2days.
14. Daily sterile dressing done in the post operative period.
15. The contents in the drain is measured daily and drain is emptied daily.
16. The outcome is measured with the following parameters such as seroma, hematoma, pain and surgical site infection and duration of hospital stay. Surgical site infection is identified with drainage of frank pus from the wound with or without clinical features of infection. Culture may be positive or negative
17. All the patients are discharged only after the subcutaneous drain is removed .

Any surgery in obese individuals will have complications whether done electively or emergency. These include seroma, hematoma, wound dehiscence and surgical site infections. These complications will prolong the hospital stay of the patient and cause economic burden to the patient. Local wound complications occur more frequently in obese individuals because of the increased subcutaneous fat thickness in these patients. So after skin incision with scalpel, during the dissection of subcutaneous plane, the use of diathermy to arrest bleeding points in subcutaneous plane will all

lead to the subcutaneous fat lysis and seroma formation. Any bleeding point in subcutaneous plane not arrested properly could lead to hematoma formation in wound. These collections in the wound act as a nidus for infection. These complications will lead to wound failure or dehiscence. Wound dehiscence cannot be sutured secondarily because of persisting wound infection and also discharging seroma or hematoma. They have to be treated daily with cleaning and dressing, intravenous antibiotics according to culture and sensitivity reports. All the collections underneath the wound has to be let out. If seroma or hematoma not drained adequately, it could lead to secondary infection. Because of these complications, hospital stay of patients prolonged and also mobilization of patients also delayed. There will be no time for these patients to undergo weight loss program. Many methods have been developed to reduce the local wound complications. Subcutaneous suction drains help to let out the seroma, hematoma and any purulent discharge. This reduces the chance of wound dehiscence.

Obese individuals with body mass index more than 32 kg/m² are included. BMI is measured with quetelet index. subcutaneous fat thickness of more than 3 cm undergoing elective laparotomy were included. In our study we measured the subcutaneous fat thickness with ultrasound, and subcutaneous fat thickness is measured in the midline of the abdomen 1cm caudal to umbilicus. Subcutaneous tube drains kept in seventy five patients. The drain is removed when the output is less than 30 ml/day for 2 days. Another seventy five patients without subcutaneous drains were compared for the occurrence of local wound complications such as seroma,

hematoma, wound dehiscence and surgical site infections, pain and length of hospital stay.

The study group consists of 150 patients. Total male patients in the study group is 86 and the female patients is 64. The mean age group of the patients included in the study is around 40 years. Mean body mass index of the study group is 34.40 kg/m². Mean subcutaneous fat thickness of the obese patients included in the study is 3.68cm. Wound complications observed in 6 patients with subcutaneous drain which forms 8% of the total patients with subcutaneous drain. Wound complications observed in 25 patients without subcutaneous drain which forms 33.3% of the total patients without subcutaneous drain. Thus the incidence of wound complication is low in those with subcutaneous drain than those without drain.

In our study Seroma occurred in 14 patients in whom the subcutaneous drain was not kept which represents 18.7% of those without subcutaneous drain. Seroma evacuated in all 14 by removing one or two sutures and applying pressure dressing over it. Thus the development of seroma is more with the patients without subcutaneous drain when compared to those with subcutaneous drain.

In our study Hematoma occurred in 5 patients in whom the subcutaneous drain was not kept, which represents 6.7% of those without subcutaneous drain. Hematoma is evacuated under local anaesthesia with sterile aseptic precautions and daily dressing done. Thus the occurrence of hematoma is more in patients without subcutaneous drain than compared to those with drain.

In our study 15 patients developed pain. Pain at the wound site occurred in 4 patients with subcutaneous drain representing 5.3% of those with drain. And pain occurred in 11 patients without subcutaneous drain representing 14.7% of those without drain. All the 15 patients are treated with analgesics. It is found that subcutaneous drain has no impact in development of pain.

In our study It is considered that patients who presents with pus discharge (culture positive or culture negative), who presents with clinical features of infection comes under surgical site infection. 13 patients developed SSI. It is found to be superficial SSI in all 13. Surgical site infections occurred in 2 patients with subcutaneous drain which represents 2.7% of those with drain. And surgical site infections occurred in 11 patients without subcutaneous drain which represents 14.7% of those without drain. Intervention is done in all the 13 patients. Antibiotics are started according to culture & sensitivity and wound cleaning and dressing done three times a day. Among the 13 patients 2 patients developed wound gaping for which wound debridement and secondary suturing done. Thus the incidence of SSI is more in those without subcutaneous drain than those with subcutaneous drain.

Thus seroma and hematoma occurred only in patients without subcutaneous drain. Pain at the wound site is seen in patients with subcutaneous site also. Surgical site infections occurred in less number of patients with subcutaneous drain. Intervention needed for 25 patients without subcutaneous drains which forms 33.3% of the group without drain. Intervention needed only for 4 patients with subcutaneous drain which forms 5.3% of the group. Thus intervention is done in more number of patients without subcutaneous drain than those with subcutaneous drain. Mean stay of the

patients with subcutaneous drain is low(5 days) when compared with the mean stay of 8.6 days for the group of patients without subcutaneous drain.

CONCLUSION: In our study it is concluded that Obese patients undergoing elective laparotomy suffer from local wound complications such as seroma, hematoma, pain at the wound site, wound dehiscence and surgical site infections. These will lead to increased morbidity for the obese patients and prolonged hospital stay. These complications can be reduced with the use of subcutaneous drain to let out the collections in the wound. In our study we found that obese patients undergoing elective laparotomy with subcutaneous drains had no seroma, no hematoma and lesser incidence of surgical site infections. Thus placement of a subcutaneous drain in obese individuals with increased subcutaneous fat thickness helps in reducing the local wound complications and reducing the hospital stay of the patients and also aids in faster recovery.

KEY WORDS-OBESITY ,SUBCUTANEOUS FAT THICKNESS, BODY MASS INDEX, SURGICAL SITE INFECTION, HEMATOMA, SEROMA, WOUND DEHISCENCE, PAIN, SUBCUTANEOUS DRAIN AND HOSPITAL STAY, WOUND HEALING, COLLAGEN, CHOLESTROL.